

AMENDMENTS TO THE CLAIMS

1. (Presently Amended) A device for coaxially mounting a machine element having a bore upon a shaft, comprising:

a nut having a threaded portion ~~threads~~ and a first connector;

an outer sleeve for engaging the machine element, comprising:

a tapered external surface;

a tapered internal surface wherein the internal surface has a minor diameter adjacent a forward end of the outer sleeve and a major diameter spaced rearwardly from the forward end;

at least one axial slot extending longitudinally along the outer sleeve to permit expansion of the external surface of the outer sleeve;

a second connector connected with the first connector to connect the outer sleeve with the nut to impede substantial forward and rearward axial displacement of the outer sleeve relative to the nut while allowing rotation of the outer sleeve relative to the inner sleeve;

an inner sleeve for encircling the shaft, comprising:

a tapered external surface corresponding in angle of taper to the tapered internal surface of the outer sleeve and having a minor diameter adjacent a forward end of the inner sleeve and a major diameter spaced rearwardly from the forward end of the inner sleeve;

an interior bore cooperable with ~~corresponding in diameter to~~ the shaft;
and

a threaded portion remote from the forward end of the inner sleeve and cooperable with the threaded portion ~~threads~~ of the nut;

wherein rotating the nut in a first direction displaces the inner sleeve forwardly relative to the nut, which displaces the major diameter of the external surface of the inner sleeve toward the minor diameter of the outer sleeve internal surface, thereby causing the inner sleeve to contract against the

shaft and the outer sleeve to expand against the bore of the machine element, and wherein rotating the nut in a second direction displaces the inner sleeve rearwardly relative to the nut, thereby loosening the inner sleeve from the shaft and the outer sleeve from the bore of the machine element.

2. (Original) The device of claim 1 wherein the outer sleeve comprises a plurality of axial slots extending longitudinally along the outer sleeve, wherein the configuration and orientation of the slots provide sufficient radial flexibility to allow the outer sleeve to deflect to fit over the first connector of the nut.
3. (Original) The device of claim 2 wherein the first connector comprises a circumferential groove and the second connector comprises a flange extending radially inwardly, wherein said outer sleeve is sufficiently resilient such that the outer sleeve contracts after flexing to fit the flange into the groove.
4. (Original) The device of claim 1 wherein the external surface of the outer sleeve has a minor diameter and the nut has an external diameter that is greater than the minor diameter of the outer sleeve external diameter.
5. (Original) The device of claim 1 wherein the external surface of the outer sleeve has a major diameter and the outer sleeve comprises an external flange extending radially outwardly adjacent the major diameter of the outer sleeve external surface.
6. (Original) The device of claim 1 wherein one end of the inner sleeve is continuous about the circumference.
7. (Original) The device of claim 1 wherein the outer sleeve is a one-piece sleeve

comprising a plurality of slots forming a plurality of sections connected by a web that allows the outer sleeve to resiliently deflect radially.

8. (Original) The device of claim 1 wherein the outer sleeve comprises a stop engageable with the machine element to impede relative axial displacement between the outer sleeve and the machine element.
 9. (Previously Amended) A device for coaxially mounting a machine element having a bore upon a shaft comprising:
 - a one-piece inner sleeve for encircling the shaft, having a forward and rearward end, wherein the inner sleeve comprises:
 - a threaded portion adjacent the rearward end;
 - a frustoconical external surface having a major diameter adjacent the threaded portion and a minor diameter spaced from the major diameter toward the forward end of the inner sleeve;
 - an internal bore configured to cooperate with the shaft;
 - a nut having threads at one end and a circumferential flange at the distal end;
 - an outer sleeve ~~configured~~ operable to engage the machine element, having a forward end and a rearward end, wherein the outer sleeve comprises:
 - a frustoconical internal surface corresponding in angle of taper to the frustoconical external surface of the inner sleeve, and having a major diameter adjacent the rearward end and a minor diameter adjacent the forward end;
 - an external surface ~~corresponding to the bore of the machine element;~~
 - and
 - a circumferential interlock engaging the flange of the nut to prevent substantial forward and rearward axial displacement of the outer sleeve relative to the nut;
- wherein upon rotation of the nut in a first direction, the threaded portion of the

nut engage with the threads of the inner sleeve displacing the inner sleeve in one direction relative to the nut and the outer sleeve thereby displacing the major diameter of the inner sleeve external surface toward the minor diameter of the outer sleeve internal surface, the displacements causing the internal bore of the inner sleeve to contract against the shaft and the external surface of the outer sleeve to expand against the bore of the machine element.

10. Original) The device of claim 9 wherein the flange extends radially outwardly and the nut further comprises an annular groove adjacent the flange, wherein the outer sleeve is a one piece sleeve having sufficient resilience such that the outer sleeve contracts after flexing to fit over the flange thereby displacing the circumferential interlock into engagement with the circumferential groove.
11. (Original) The device of claim 9 wherein the frustoconical external surface of the outer sleeve ~~comprises a frustoconical external surface having~~ has a minor diameter adjacent the forward end of the outer sleeve and a major diameter spaced rearwardly from the minor diameter.
12. (Original) The device of claim 11 wherein the nut has an external diameter that is greater than the major diameter of the outer sleeve external surface.
13. (Original) The device of claim 9 wherein the outer sleeve comprises a stop engageable with the machine element to impede relative axial displacement between the outer sleeve and the machine element.
14. (Original) The device of claim 9 wherein one end of the inner sleeve is continuous about the circumference.

15-20 (Canceled)

21. (Previously Presented) The device of claim 9 wherein rotating the nut in a second direction displaces the inner sleeve rearwardly relative to the nut, thereby loosening the inner sleeve from the shaft and the outer sleeve from the bore of the machine element.
22. (New) The device of claim 9 wherein the threaded portion of the nut and the threaded portion of the inner sleeve are cooperating left hand threads.
23. (New) The device of claim 1 wherein the threaded portion of the nut and the threaded portion of the inner sleeve are cooperating left hand threads.
24. (New) A device for coaxially mounting a machine element having a bore upon a shaft comprising:
 - a nut having a left handedly threaded portion and a first connector;
 - an outer sleeve for engaging the machine element, comprising:
 - a tapered internal surface;
 - a second connector connected with the first connector to connect the outer sleeve with the nut to impede substantial forward and rearward axial displacement of the outer sleeve relative to the nut while allowing rotation of the outer sleeve relative to the inner sleeve;
 - an inner sleeve for encircling the shaft, comprising:
 - a tapered external surface corresponding in angle of taper to the tapered internal surface of the outer sleeve
 - an interior bore cooperable with the shaft; and
 - a left handedly threaded portion remote from the forward end of the inner sleeve and cooperable with the threaded portion of the nut;

wherein rotating the nut in a first direction displaces the inner sleeve forwardly relative to the nut, thereby causing the inner sleeve to contract against the shaft and the outer sleeve to expand against the bore of the machine element, and wherein rotating the nut in a second direction displaces the inner sleeve rearwardly relative to the nut, thereby loosening the inner sleeve from the shaft and the outer sleeve from the bore of the machine element.

25. (New) The device of claim 24 wherein the internal surface of the outer sleeve has a minor diameter adjacent a forward end of the outer sleeve and a major diameter spaced rearwardly from the forward end, and the internal surface of the inner sleeve has a minor diameter adjacent a forward end of the inner sleeve and a major diameter spaced rearwardly from the forward end of the inner sleeve.
26. (New) The device of claim 25 wherein rotating the nut in a first direction displaces the major diameter of the external surface of the inner sleeve toward the minor diameter of the outer sleeve internal surface.
27. (New) The device of claim 24 wherein the first connector is one of a flange and a mating groove configured to retain the flange within the groove, and the second connector is the other of the flange and the mating groove.
28. (New) The device of claim 24 wherein the outer sleeve comprises a plurality of axial slots extending longitudinally along the outer sleeve, wherein the configuration and orientation of the slots provide sufficient radial flexibility to allow the outer sleeve to deflect to fit over the first connector of the nut.
29. (New) The device of claim 24 wherein the external surface of the outer sleeve

has a major diameter and the outer sleeve comprises an external flange extending radially outwardly adjacent the major diameter of the outer sleeve external surface.

30. (New) The device of claim 24 wherein the outer sleeve comprises a stop engageable with the machine element to impede relative axial displacement between the outer sleeve and the machine element.